

II. NATURAL RESOURCES

As part of the Comprehensive Planning process, communities should make decisions that consider the preservation, maintenance, and responsible uses of natural resources. The 1869 “Gazetteer and Business Directory of Cortland County”, described the then Village of Cortland, “*as ornamented with abundant shade trees and beautifully landscaped residences adding greatly to the appearance of the Village. The streets and walks are wide and ornamented with shade trees. There are many neat and beautiful residences in various parts of the Village, with grounds ornamented with flowers and shrubbery, which add greatly to the appearance of the Village.*” Clearly, the City has historically placed a high value on its appearance and natural resources. Below is a review of the important natural resources of the City which exist today.

LAND RESOURCES

The City of Cortland has 3.9 square miles of land area, with .04 square miles of surface water. It is known as the “Crown City” due to its location on a plateau formed by the convergence of seven valleys.

Slope and Topography - Slope and topography describe the shape and relief of the land. Topography describes the elevation and changes in elevation, while slope is a measurement of the percentage of change in elevation over a particular distance. The terrain in the City of Cortland is primarily flat. Elevation throughout most of the City averages about 1,139 feet above sea level. Prominent knobs boasting steeper elevations can be found in the northern reach of the City (up to about 1,555 feet), in the southwest in and around SUNY Cortland (up to 1,640 feet), and in the southeast (up to 1,739 feet). The surrounding area is characterized by rolling hills. Along the Tioughnioga River, which runs along the City’s eastern boundary and across its northeast corner, elevations are slightly lower than average, (see Map 5 at the end of the Section).



Soils - Soil characteristics affect a variety of human activities, from land use patterns, to transportation routes, to the installation of necessary community infrastructure. Soils in Cortland County are the result of ice-age glacial movements, which removed surface materials and redeposited them in an uneven pattern of soil and rock. The higher elevations tend to have stony, poorly drained soil that is not well-suited for cultivation or construction. By contrast, the valleys contain rich soils and extensive deposits of sand and gravel.



Most of the City is built on rapidly permeable, well-drained soil. However, the northeast and northwest quadrants are underlain by deep gravel deposits and an extremely high water table, which tends to cause drainage problems. Near Otter Creek and Dry Creek there is a problem with frequent flooding due to the high water table and restrictions on dredging and debris removal in the creek beds. Along the River, the soil is a rich alluvium, elsewhere in the City the soil is a gravelly argillaceous loam.

Unique Natural Areas (UNAs) and Critical Environmental Areas (CEAs) - Unique Natural Areas (UNAs) are locally designated sites that are recognized because of the outstanding qualities that render them unique and deserving of preservation in a natural state. UNAs include natural features such as woods, swamps, glens, cliffs, gorges, and streams that occur in a natural setting or in an urban greenspace. Often, the characteristics that make a site unique are extremely vulnerable to a wide range of both direct and indirect impacts and may be compromised by disturbing the site. UNAs are generally closed to the public. The City of Cortland has not designated any site within the City as a UNA.



Under the New York State Environmental Quality Review Act (SEQRA), local agencies may designate specific geographic areas within their boundaries as Critical Environmental Areas (CEAs). To be designated as a CEA, an area must have an exceptional or unique character with respect to one or more of the following: a benefit or threat to human health; a natural setting, e.g., fish and wildlife

habitat, forest and vegetation, open space and areas of important aesthetic or scenic quality; agricultural, social, cultural, historic, archaeological, recreational, or educational values; or an inherent ecological, geological, or hydrological sensitivity to change that may be adversely affected by any change. The designation of a CEA provides some regulatory protection for a site and functions as an indicator for developers, local officials, and other governmental agencies that the site is of significant environmental value. There is one CEA in the City of Cortland. The City Water Works CEA became effective in December 1989, and was designated to protect the sole source aquifer, which is discussed in detail below.

Rare Plants and Animals - The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (DEC) and The Nature Conservancy. The purpose of the program is to facilitate conservation of rare animals, rare plants, and natural ecosystems thereby maintaining the biodiversity of New York State. NY Natural Heritage data communicate a picture of the status of biodiversity in New York.

Nearly the entire City of Cortland, except for the extreme southwest corner, has been mapped as having rare plants or animals, although there are no significant ecological communities. This means that at some point in time rare plants or animals were identified in or near the City. Rare plant and animal species are not disclosed to the public, rather, if a



landowner or developer intends to disturb a site, he or she can contact the NYSDEC Natural Heritage Program for guidance. Information on the locations and identities of rare species is provided to requesters at the level of detail necessary to enable fully informed decision-making while protecting the sensitive resource.

There are no State regulated wildlife management areas within the City.

WATER RESOURCES

Water resources are typically critical to the public health, environmental, and economic well-being of a community. Economic and environmental activities dependent on the integrity of local water bodies and local water supplies include tourism, recreation, education, agriculture, industry, and real estate. In the City of Cortland, there are significant surface water and groundwater resources that merit protection. Map 4 at the end of this Section, depicts rivers, streams, wetlands, flood zones, and the boundary of the sole source aquifer in the City.

Of particular note is the Cortland-Homer-Preble aquifer, which provides a high quality source of public drinking water for City residents. However, because of the geology in the area, this aquifer, and therefore the local drinking water supply, is particularly susceptible to contamination. As the City considers its future, primary consideration must be given to ensuring that all development proposals include proper safeguards to preserve all water resources in the City.

Groundwater and Sole Source Aquifer - Groundwater is any water that is located under the surface of the ground including underground streams and aquifers. The water table is how deep you would have to dig to reach soil that is saturated with water. In Cortland County, the water table generally occurs at depths of less than 25 feet below the land surface. Aquifers can occur at various depths; some are very deep beneath the Earth's surface and are not easily impacted by human activity. Others, such as the Cortland-Homer-Preble aquifer are closer to the earth's surface and, as previously stated, highly susceptible to contamination. The average depth to ground water in the City is typically in the range of 10 to 20 feet, with shallower depths closer to the Tioughnioga River, and greater depths toward the hillsides. Near the river, the depth to ground water may only be a few feet below ground surface.



Nearly the entire City sits atop the Cortland-Homer-Preble aquifer. The only exceptions are three areas within the City with steeper elevations, as described above in *Slope and Topography*. This aquifer was designated as a sole source aquifer (SSA) by the U.S. Environmental Protection Agency (EPA) in the late 1980's, (See Appendix H for U.S. EPA, Region 2, Cortland Homer Preble Aquifer System Support Document, June 1988). An SSA is an



aquifer that has been designated as the "sole or principal" source of drinking water for an area. It is a slight misnomer to say that the Cortland-Homer-Preble aquifer was designated as an SSA since the SSA-area designated by the U.S. EPA is, in point of fact, a very large area that includes not only the actual sand and gravel deposits that comprise the Cortland-Homer-Preble aquifer, but also the ground water recharge areas and surface water watersheds. Map 6 depicts the SSA designated by the EPA for the Cortland-Homer-Preble aquifer. The large land area encompassed by the SSA can be thought of as a sphere of influence, that is, anything that happens within the SSA can affect the underlying sand and gravel aquifer.

An aquifer is an underground bed or layer of permeable rock, sediment, or soil that yields water. The Cortland-Homer-Preble aquifer consists of sand and gravel deposits situated beneath the valley floors. Map 7, at the end of this Section, depicts the location of the sand and gravel deposits that comprise the actual aquifer. A watershed is all of the land that contributes water, but also pollutants, to a specific surface water body (such as the Tioughnioga River or Dry Creek). A ground water recharge area is like a watershed, however, it is a resource for an aquifer or well. It is important to understand that all of these water resources (surface and ground) and water transport mechanisms (recharge areas and watersheds) are an interconnected system. What flows into the rivers, streams, or aquifer, or through the recharge areas and watersheds, affects other parts of the system.

Ground water recharge occurs through soil infiltration, loss from streams, and ground water flow from upland areas. Due to high soil permeability and shallow depth to the ground water in this area, pollution of the ground water begins immediately; it does not have to reach the "water table" (zone of saturation) or the aquifer to begin polluting. As a result, the City must be particularly attentive to any activities that will cause contamination of water resources within the designated SSA.

Ground water can become contaminated from many sources such as rain and snowmelt runoff, which can carry a multitude of contaminants that enter the aquifer through direct recharge or surface runoff. Manmade pollutants such as oil and grease from cars, or degreasers, deicing salts, and agricultural pollutants such as animal excrement, pesticides, and fertilizers enter the ground water directly and indirectly from surface runoff. An accidental spill from a vehicle traveling on Interstate 81, or other highways in the area, poses a significant threat, as do other spills in the City. The production and storage of chemicals, including home heating oil, can lead to spills or leakage at industrial, commercial, and even residential sites and pose a major risk of contamination.

Specific to the City, in addition to surface water runoff, the next biggest threat to ground water and the aquifer in Cortland is the storage of fuel oil and petroleum products. For example, within a one-mile stretch between Cortland and Polkville (east of the City), there are three fuel/heating oil businesses, three gas stations, and an asphalt manufacturing business. Although largely flat, Cortland does have some steep slopes that could contribute significantly to pollution of the ground water or aquifer if developed. Brownfield sites are also a significant concern, as discussed in detail later in this Section.



There are three wells at the Cortland Water Works. The ground water recharge area for the wells at the Water Works includes all of the land area from which water (precipitation), could potentially reach the ground water system that feeds the wells, in this case including the Dry Creek and Otter Creek watersheds. The Dry Creek and Otter Creek watersheds are located mostly outside of the City in the Town of Cortlandville but this entire area is included in the Cortland-Homer-Preble SSA. Because nearly the entire City sits atop the Cortland-Preble-Homer SSA, protection of the groundwater is warranted. Maps 6 and 7 depict the location of the Sole Source Aquifer.

Drinking water for the City of Cortland is pumped directly from groundwater in the Dry Creek and Otter Creek aquifer. This aquifer has not been officially designated, but it is, simply put, the sand and gravel deposits that yield water for Dry and Otter Creeks. The Dry/Otter Creek groundwater system is part of the Cortland-Homer-Preble SSA. The SSA thus ultimately provides drinking water to the City and the surrounding municipalities. According to the U.S. EPA, there are no alternate sources that can provide the same quality or volume of drinking water as the Cortland-Homer-Preble SSA. The significance of protecting the SSA cannot be understated.

Because the aquifer system is interconnected and crosses municipal boundaries, the City should enact Aquifer Protection District regulations that are consistent with the protections in place in the Town of Cortlandville to protect ground and surface water resources. There have been discussions among affected municipalities regarding a unified approach to Aquifer Protection and the City should continue to strive to work with all municipalities in the aquifer area to ensure the long-term protection of the aquifer. Map 7 depicts the Aquifer Protection District areas within the Town of Cortlandville. The City should also adopt a wellhead protection zone around the Water Works that provides protection to this critical resource and its recharge area. The protected area should be extended into the City as delineated in red on Map 8.

Surface Water: Water Bodies - Surface water is any water that is exposed to the atmosphere. In the City of Cortland there are several sources of surface water: the Tioughnioga River, Perplexity Creek, Dry Creek, and Otter Creek. Surface water runoff from the City drains into all three of these water bodies. The east and west branches of the Tioughnioga River meet in the City, which then flows in a southerly direction eventually joining the Chenango River and forming a part of the Susquehanna River drainage basin.

The DEC has classified the Tioughnioga River as well as Dry and Otter Creeks, as C(T), meaning that these water bodies could support a trout population and are best used for fishing. Streams and small water bodies that are designated C(T) pursuant to the provisions of the Protection of Waters Program, found at Title 5 of Article 15 of the Environmental Conservation Law (ECL), are protected from undesirable human activities that will affect or destroy the delicate ecological balance of these important areas, or impair the use of these waters. Because these water bodies recharge the SSA, and because of their aesthetic and potential economic value to the City, all efforts should be made to protect the Tioughnioga River and creeks from any sources of contamination, particularly runoff from developed parcels. Perplexity Creek is classified as C, meaning that it may support fish, but not trout. It is not protected by the DEC.



The City's location on the Tioughnioga River enabled Cortland's industrial and manufacturing sector to successfully develop in the 19th century. The river is an asset that, sadly, the City has not taken advantage of. Recently, the Tioughnioga River Local Waterfront Revitalization Plan was completed and will be adopted in the coming months by 11 local governments. The Plan contains an extensive discussion of the natural and built environment along the river and contains recommendations for revitalizing the riverfront and capitalizing on it as a community asset for each affected local government. Among the proposed projects are a riverfront trail; increased access to the river; revitalization of downtowns adjacent to the river; waterfront-oriented policies relating to fishing, and other river related activities; and, environmental clean up and preservation.

Surface Water: Wetlands - Wetlands are a type of surface water. More specifically, wetlands are areas that contain soils that are saturated by ground water or surface water and support wetland plants. Wetlands provide a multitude of ecological, economic, and social benefits. They provide habitat for fish, wildlife, and a variety of plants. Wetlands absorb, store, and slow down the movement of rain and snow melt, minimizing flooding and erosion, and stabilizing water flow. Wetlands recharge ground water and act as a filter that cleanses surface runoff containing manmade contaminants. Wetlands recycle nutrients, which then contribute to the foodchain and local biodiversity. Wetlands also provide areas for recreation, wildlife viewing, and educational opportunities for humans.



Wetlands serve various functions and are critical to the health of other ecosystems. The National Wetland Inventory (NWI) program was established in the 1970's to inventory the nation's wetlands and report on their status. The program produces wetlands maps, which are periodically updated, as well as evaluating and reporting on changes in wetland status in response to natural processes and to human development. NWI designated wetlands do not carry restrictions as a result of such designation except to the extent they may be regulated by the U.S. Army Corps of Engineers which is determined on a case-by-case basis. There are several small NWI delineated wetlands in the City as shown on Map 4 at the end of this Section.

DEC regulated wetlands are governed by the Freshwater Wetlands Act (FWA), Article 24, of the Environmental Conservation Law. Wetlands greater than 12.4 acres, or smaller wetlands that are considered of unusual local importance, are regulated under the FWA. Additionally, around every wetland is an "adjacent area" of 100 feet that is also protected to provide a buffer for the wetland. The main provisions of the FWA seek to regulate those uses that would have an adverse impact on wetlands, such as filling or draining. A permit is required when conducting certain activities within DEC regulated wetlands. There are no DEC regulated wetlands within the City of Cortland.



Flood Zones - A relatively large portion of the City is located within designated flood zones. Flood zones are described in terms of 100-year (or 500-year) floods. The terms “100-year flood” and “100-year floodplain” can be misleading. A 100-year flood is not a flood event that can be expected to occur once every 100 years. Rather, it is a flood that has a one percent (1%) chance of occurring in a given year. Thus, a 100-year flood could occur more than once in a relatively short period of time. The 100-year floodplain is the geographic area designated by the Federal Emergency Management Agency (FEMA), which would be submerged during a 100-year flood event. On FEMA maps, flood prone areas are depicted as flood zones. Each zone reflects the severity or type of flooding possible in the area.

According to FEMA, a "Regulatory Floodway" means “the channel of a river or other watercourse and the adjacent land areas that must be reserved (from obstructions such as development) in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.” Development in floodways must be regulated by local jurisdictions to ensure that there are no increases in upstream flood elevations. Development within the City is prohibited in floodways except where the developer can demonstrate that the proposed development would not impede the flow of floodwaters.

In the City, lands adjacent to the Tioughnioga River and Dry and Otter Creeks, are situated in a floodplain and parts of the floodway. Map 8 illustrates the 100-year and 500-year flood zones and the floodway for the City of Cortland. In 2008, FEMA proposed new flood zones and an expanded floodway affecting the status of 646 properties. The City successfully appealed the designations reducing the number of properties affected. The City, in compliance with FEMA regulations, has recently developed a new flood damage prevention ordinance.

Areas of the City, particularly near the Tioughnioga River, and Dry and Otter Creeks, have suffered flood damage in recent years. This flooding has been exacerbated by the accumulation of sediment and debris in the creeks. The NYS Department of Environmental Conservation (DEC) will not allow dredging due to environmental concerns. In order to mitigate some of flooding concerns, the City is in the planning stages of constructing a flood berm along a portion of Otter Creek on the Water Works property. It is anticipated that construction may occur as soon as 2010. The City must continue to work with the DEC to identify opportunities to reduce the impact of flooding on City neighborhoods and to implement identified actions. The City should also limit new development or redevelopment in floodways.

NATURAL GAS

Natural gas consists primarily of methane and is typically found associated with other fossil fuels, in coal beds, as methane clathrates, and is created by methanogenic organisms in marshes bogs, and landfills. Natural gas is often described as the cleanest fossil fuel, producing less carbon dioxide per joule than delivered by either coal or oil, and far fewer pollutants than other fossil fuels. It is often viewed as a transitional energy source as the world moves from oil to more sustainable sources due to global warming. As detailed in Section IX.



Infrastructure and Utilities, nearly all of the City is served by piped natural gas provided by New York State Electric and Gas.

Much of Cortland County, including the City of Cortland, is located over the Marcellus Shale Formation. This formation is a unit of marine sedimentary rock found in eastern North America. Named for a distinctive outcrop near the village of Marcellus, New York, it extends throughout much of the southern New York, northern and western Pennsylvania, eastern Ohio, through western Maryland, throughout most of West Virginia, and extending into extreme western Virginia. The Marcellus Shale Formation contains enormous reserves of largely untapped natural gas, and its proximity to the high-demand markets along the East Coast make it an attractive target for energy development. According to the Cortland County Planning Department, 48% of all the land area in the County is currently leased by natural gas companies eager to begin exploration and extraction. There are no leases located within the City.

The extraction of natural gas in the region would provide many potential benefits, including jobs, royalties to property owners, income from the potential sale of water, and increased tax revenue, in addition to bolstering national efforts for energy independence. However, there are a number of negative impacts that have caused significant concern among many residents in the region. The nature of the shale formation requires specialized technologies to extract. The most common method is hydraulic fracturing, also known as hydrofracturing, hydrofracking, fracking, and simply frac. This is a process whereby water, various chemicals, and often sand, are pumped into the rock formations at high pressure, resulting in the creation of fractures in rocks, the goal of which is to increase the output of a well. This standard process had been used for over 60 years in more than one million wells, although high-volume horizontal slickwater fracturing, such as would be used locally, is a newer process. The chemicals in the hydrofracturing fluid could pose environmental hazards, particularly to groundwater. This can be due to surface spills at the drilling site, spillage of fluid during transport to a treatment facility, failure of underground pipe casings, or other unforeseen accidents. Large volumes of recaptured contaminated wastewater also need to be cleaned, processed, and disposed. Other concerns include the industrialization of farmland, damage to roads and bridges from heavy truck traffic, and a loss of community character.

The development of the Marcellus Shale formation has the potential to significantly impact much of Cortland County including, directly or indirectly, the City of Cortland. Although it is unlikely that any drilling or extraction would occur within the City limits, the City should remain aware of, and be actively involved in, any discussions or processes related to the natural gas extraction process. It is paramount that the City ensure the protection of the sole source aquifer. The City must also be aware of any impacts or opportunities related to its wastewater treatment plan, ensure that roads and other infrastructure are not damaged, that other potential negative impacts are fully mitigated, and that the opportunities provided by extraction are measured against potential threats. The City will need to work closely with other County municipalities and with New York State to protect the environment and the quality of life treasured by residents, while ensuring that residents reap any financial benefits.



SUSTAINABILITY

Growth is both inevitable and desirable for a healthy community. The way a community manages its growth directly impacts not only the built environment but also all natural resources within the local jurisdiction and beyond. Respondents to the Resident's Survey, albeit representing a small sample of the Cortland City population, indicated that more attention should be paid to conservation and protection of the aquifer. At this time, the City has no active sustainability or preservation initiatives. Residents must be cognizant of the fact that what happens in the City of Cortland and in adjacent jurisdictions has an environmental impact elsewhere. Conversely, nearby municipalities can impact Cortland. The City should provide input, whenever possible, to the Town of Cortlandville and Town and Village of Homer, when projects are proposed that could affect the aesthetic or natural resources in the City.

Green Building - Utilization of green building techniques, alternative energy sources, and interior home improvements that promote energy efficiency and conservation will make the City a better place to live. The City has an opportunity take a leadership role in such an initiative by modeling sustainable construction and business practices. Taken together, these actions will have not only a local, but also a global impact. See Section XIV. *Land Use and Zoning*, for an expanded discussion of green infrastructure and green building.

Brownfields - According to the NYSDEC, nearly every community in New York State is affected by contaminated, underused, or abandoned commercial and industrial properties, known as brownfields. Some, but not all, brownfield sites are contaminated with toxins. Left untouched, brownfields pose environmental, legal, and financial burdens on a community and its taxpayers. However, after cleanup, these sites can contribute to the economic welfare of the community by providing jobs, tax revenues, and housing.

Cortland has several notable brownfields, including, but not limited to, the former Wickwire site and the former Buckbee Mears site on Kellogg Road. The Wickwire's owned approximately 40 acres of land in Cortland's South End neighborhood. After the facility closed and was demolished, 20 acres of the former Wickwire site was used as a scrap yard. That site, known as the Rosen Site, was also subsequently used as a repository for toxic and hazardous waste and was eventually designated by the EPA as a Superfund Site. Now complete, the clean-up cost approximately \$30 million dollars. A five-acre permanent cap remains on the site and can never be developed while other areas have development limitations. The Rosen parcel is now part of the Noss Technology Park. As detailed in Section III. *Economic Development*, Noss Park has been the recipient of Build Now-NY funds and Environmental Remediation funds to assist with environmental identification, clean-up, and marketing.

Subsequent to identification and clean up of the Rosen site, another Superfund site was identified within the City, the former Buckbee Mears facility. It is now undergoing the clean-up process by the EPA. It is not located within Noss Technology Park. More information on these sites is detailed in Section III. *Economic Development*.



Because of Cortland's industrial history, there is little doubt that additional contaminated brownfield sites exist in Cortland, as well as clean former industrial sites. The NYS Department of State's Brownfield Opportunity Areas (BOA) Program is designed to assist communities in redeveloping brownfield sites on an area-wide basis may be a suitable option for the City in addressing revitalization of brownfield sites. The BOA Program provides municipal participants with assistance to complete revitalization plans and implementation strategies for brownfield sites on an area-wide basis. BOA Program participants are given access to planning services, expert environmental and economic analysis, and environmental site assessment for strategic redevelopment of parcels. Fostering public participation and public-private partnerships are integral aspects of the BOA Program.

Because one of the main recharge sources for the Cortland-Homer-Preble aquifer is water transmitted to the aquifer through soil absorption, it is particularly important to clean up any contaminated sites since chemicals that settle in the soil, including airborne contaminants, can continue to leach into the ground water. The BOA program provides an economy-based approach to redevelopment and revitalization of brownfields.

Urban Forest - Trees and vegetative cover are a component of green infrastructure but also provide valuable services related to stormwater management, ground water recharge, pollution filtration, and soil and water conservation. Trees confer an economic benefit to development in the form of added value. They help to attract tourists and retain employees who value a high



quality of life. Trees and other greenery contribute to the overall aesthetic of the community, contribute to the character of neighborhoods, and make city streets more walkable by shielding pedestrians from the sun, wind, and noise.

The City has had a municipal tree planting program since 1988, using funding from its Miscellaneous Revenues to pay for this program. It has also been designated as a Tree City USA. In total, the City has planted close to 1,000 trees in its right-of-ways. The City has also captured funding from the

NYS Department of Environmental Conservation to plant additional trees throughout the community and on municipally-owned property such as the Youth Bureau, City parks, and parking lots. The City should continue to fund this program and seek additional funds when the opportunity arises. In addition, since larger tree species that provide the shade canopy desired by the City can conflict with sidewalks and underground utilities, the City should educate the public about the benefits of planting larger trees on their private property as a means of increasing green infrastructure.

Community Gardens – Community Gardens provide areas for residents to grow their own food and flowers, maintain open space, and provide opportunities to foster community cohesiveness (See Section VIII. *Parks and Recreation*). The health benefits of locally grown, organic produce are well documented. Furthermore, these locally grown foods are often cheaper than purchased produce, and are more environmentally sensitive than food that is often shipped across country.



The City is fortunate to have a growing number of existing community gardens, and should encourage residents to utilize these gardens, as well as develop new ones.

GOALS AND IMPLEMENTATION MEASURES

GOAL 4: Future development and redevelopment within the City will not cause degradation of water resources.

IMPLEMENTATION MEASURES:

- A) Work with the Town of Cortlandville and other entities to ensure that adequate stormwater runoff/retention ponds are in place for all new developments.
- B) Encourage use of alternative and emerging technologies for existing and new developments, allowing the use of paving stones or other green technologies that minimize, redirect, or treat runoff from parking lots and driveways.
- C) Seek assistance from the County Soil and Water Conservation District to comprehensively review and revise all local regulations dealing with storm water runoff and retention to maximize protection of surface and groundwater resources.
- D) Delineate an aquifer protection district and adopt a local law requiring an aquifer protection permit for new commercial or industrial development or redevelopment within aquifer protection district.
- E) Require a SEQRA Long Form Environmental Assessment for all development proposals adjacent to, or with the potential to impact, wetlands to allow for more intense scrutiny so as to minimize impacts.
- F) Implement the actions and recommendations contained in the Tioughnioga Local Waterfront Revitalization Program.
- G) Forge a partnership with SUNY Cortland to minimize the environmental impacts of campus development.
- H) Gather baseline data for streams and public water sources so that any potential future contamination from natural gas extraction processes can be documented and verified.
- I) Work with other municipalities, and County, State, and federal governments to preserve and protect the safety, quality, and quantity of the public water supply from any negative impacts related to natural gas extraction processes.



GOAL 5: Identify, remediate, and redevelop brownfield sites throughout the City.

IMPLEMENTATION MEASURES:

- A) Request proposals from qualified firms to provide planning services associated with the development of a Step 1 Pre-Nomination Study for a Brownfield Opportunity Area (BOA) Program application for former industrial locations throughout the City that have not already been remediated or otherwise addressed.
- B) If BOA participation is not pursued, create an inventory of all potential brownfield sites within the City, to enable landowners to apply for clean up funding, and to redevelop these sites for various types of infill development.
- C) Continue to pursue funding for clean up, development, and reuse of the Noss Industrial Park.

GOAL 6: Minimize flood risk and impacts of flooding

IMPLEMENTATION MEASURES:

- A) Seek funding to identify strategies and implement projects to mitigate or alleviate regular flooding of the Tioughnioga River, Dry Creek and Otter Creek.
- B) In the event of a major flood that severely damages properties in the floodway, assemble parcels to create a park or other open space/recreation areas on parcels that are no longer developable.
- C) Encourage the use of alternative technologies and methods, including permeable paving surfaces for parking lots, to reduce runoff contributing to flooding in flood hazard areas.
- D) Require new developments to manage stormwater runoff on-site to the greatest extent practicable, and encourage the capture and reuse of rainwater.
- E) Amend land use regulations to limit the impact of new development in the 100-year flood zone.

GOAL 7: Become a leader in the use of sustainable technology and green building practices.

IMPLEMENTATION MEASURES:

- A) Encourage energy conservation and efficiencies and promote the use of alternative/clean energy sources.



- B) Promote energy efficiency, including LEED certification, for new or existing structures such as green build standards, alternative energy sources, and/or new energy saving technologies. Energy saving or alternative energy appliances, technology, materials, or other apparatus shall be of such a nature that it will not interfere with any neighboring properties and/or will not negatively impact the City's environment and quality of life.
- C) Utilize alternative energy sources such as geothermal and solar in all City-owned building projects to promote use of green technologies.
- D) Seek grant funds to assist private property owners to make properties more energy efficient and environmentally sustainable.

GOAL 8: Ensure that future development and redevelopment within the City complements and enhances the natural environment while remaining cognizant of unintended consequences that can hinder or impede desired development.

IMPLEMENTATION MEASURES:

- A) Conserve natural resources and environmentally sensitive areas including air, water, and land by encouraging conscientious development.
- B) Review and amend land use regulations to protect and enhance the natural resources of the community while ensuring that new or enhanced regulations are not overly cumbersome or limiting to new development.
- C) Strictly comply with SEQRA for projects that require such review to ensure protection of natural resources.
- D) Seek grant funding and/or establish programs to increase and improve the urban forest to enhance community character, and reduce heat island effect. This includes planting of large trees where possible and smaller trees where above ground infrastructure is present.
- E) Support the development of community gardens.
- F) Seek grant funding to establish voluntary gardening programs for high school students and adult volunteers to promote healthy eating and to beautify commercial properties, large parking lots, fencelines, and paved areas with plantings and trees as appropriate.

